

Trend Study 10-4-00

Study site name: Wirefence Point .

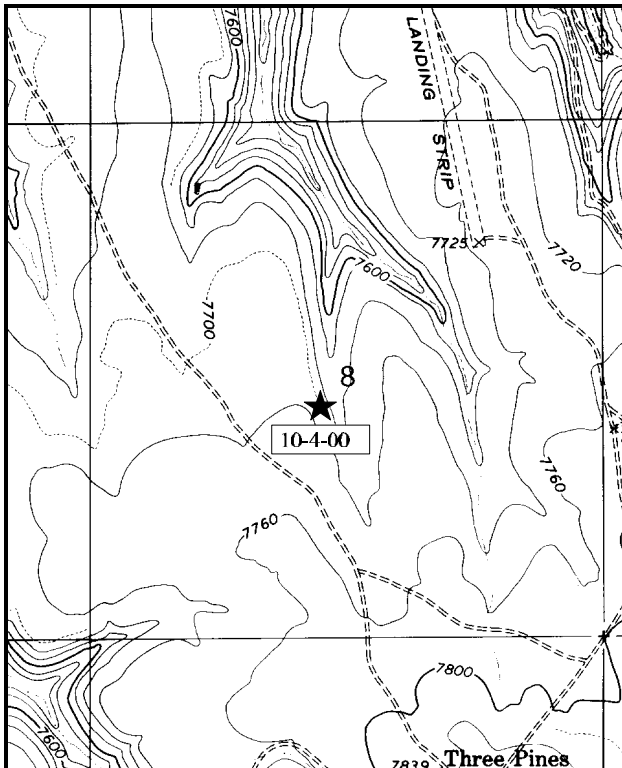
Range type: Mixed Mountain Brush .

Compass bearing: frequency baseline 345°M.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

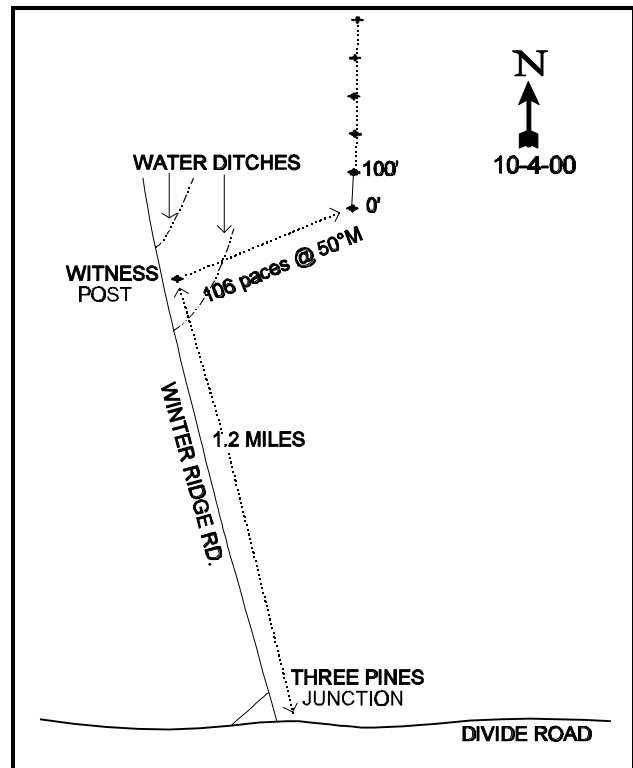
LOCATION DESCRIPTION

From the Book Cliffs Summit road near Three Pines, turn right on the Winter Ridge Road. Travel 1.2 miles towards Winter Ridge to a witness point. There may be an old drainage ditch or faint fork on the right hand side of the road. From the witness post, walk out 106 paces bearing 50°M to the 0-foot baseline stake. The frequency baseline is marked by green fenceposts 12-18 inches in height.



Map Name: Cedar Camp Canyon

Township 16S , Range 23E , Section 8



Diagrammatic Sketch

UTM. 4365702.535 N, 637052.332 E

DISCUSSION

Trend Study No. 10-4 (16A-4)

The Wirefence Point study is located on summer range near the head of Wirefence Canyon. Elevation is 7,640 feet on nearly level terrain. In addition to the regular rotation schedule, this site was re-read in 1997 as a special studies site to monitor perceived conflicts over elk and livestock use in the North Book Cliffs. The vegetative composition of the site is sagebrush-grass mixed with mountain brush. A spray treatment with 2,4-D was done in the 1980's to thin sagebrush, however, sagebrush is again the dominant overstory species at Wirefence Point. This area is grazed by cattle on a rotation deferred system between spring and summer. Pellet group data from 2000 estimates 33 deer days use/acre (82 ddu/ha), 19 elk days use/acre (47 edu/ha), and 5 cow days use/acre (12 cdu/ha).

Soils are moderately deep with an average effective rooting depth of 18 inches. Soil temperature averaged 57°F at an average depth of 16 inches in 1997. Texture analysis indicates the soil to be a clay loam with a neutral soil reaction (pH of 6.7). The soil surface is cracked from drying indicating the abundance of clay in the soil. Percent bare ground was estimated at 18% in 1997, with very little rock or pavement cover (3%). Abundant litter and vegetation cover adequately protect the soil from erosion. Relative percent bare soil increased in 2000, with a slight decrease in relative percent vegetation cover. Also, the proportion of protective ground cover (vegetation, litter, and cryptogams) to bare soil decreased in 2000. This is due to drought which has caused a decrease in the sum of nested frequency for herbaceous species and an increase in nested frequency of bare soil. In 2000, there is some evidence of overland flow and slight pedestaling around shrubs.

In 1988, there was little evidence of the thinning 2,4-D spray treatment of browse on this state-owned rangeland as only a few sagebrush skeletons or resprouted serviceberry were found. Mountain big sagebrush is again the dominant species and most abundant browse species on the site in both density and cover. In 2000, it makes up 76% of the total browse cover and is estimated at 5,640 plants/acre. The initial reading of this transect in 1982 estimated the sagebrush population to be 4,666 plants/acre. Thirty-one percent of the population was classified as young, while the seedlings numbered 6,666 plants/acre. Hedging was very light and vigor was good. In 1988, the site had a slightly larger population (7,732 plants/acre) with an increase in percent decadence and fewer seedlings, yet a healthy proportion of young plants (60%). The number of mature plants declined from 3,200 to 2,266 plants/acre. Study site stakes could not be located in 1995, so new posts were placed as close as possible to the old baseline using photographs from previous readings. However, trends can still be determined by examining age class composition, form class, vigor, and percent decadence, with less emphasis placed on population densities. Data from 1995 estimated 5,180 plants/acre for sagebrush, a decrease from the 1988 estimate. A much larger sample size was implemented beginning in mid-1992 which lengthened the baseline which more effectively estimates shrub populations using shrub strips. The decrease in density between 1988 and 1995 can be attributed in part to the change in sample size giving better estimates for shrubs with clumped and/or discontinuous distributions. In 1995, reproductive potential (number of seedlings) was still high at 32%, with 40% of the population consisting of young plants. Utilization was light and vigor was good with a low number of decadent plants (6%). In 1997, when this site was read as a special studies site, the density of sagebrush was estimated at 4,380 plants/acre. Reproductive potential decreased from 32% in 1995 to 9% in 1997, but the proportion of young plants remained high at 1,440 plants/acre (33% of the population). Percent decadency was at 9%, with 42% of these plants classified as dying. Utilization was light to moderate with mostly good vigor. In 2000, the density of sagebrush was estimated at 5,640 plants/acre, with good recruitment of young plants (29%), light to moderate use, and good vigor. Percent decadency slightly increased to 14%, although the proportion of decadent plants classified as dying decreased from 42% in 1997 to 30% in 2000. Currently ('00), there are an adequate number of young plants to replace the decadent dying individuals within the population.

Other browse species present in the area include: squaw apple, snowberry, serviceberry, bitterbrush, and gray horsebrush. These species occur in low densities and some were not sampled in the shrub density strips, but were measured for height/crown. Dwarf rabbitbrush is present and appears to be stable with the majority of the population consisting of mature plants.

Grasses are currently abundant and consist exclusively of perennial native species. These species would have been expected to increase considerably after the initial herbicide treatment. The dominant species consists of thickspike wheatgrass, muttongrass, prairie junegrass, and Sandberg bluegrass. Grasses have contributed between 8 and 9% average cover since 1995. Due to extended drought, sum of nested frequency decreased for grasses in 2000. Forbs are also diverse with 28 perennial species identified in 1997 and 30 perennial species in 2000. Forbs accounted for 55% of the herbaceous cover in 1997, increasing to 64% in 2000. Nested frequency of annual forbs has steadily decreased since 1995. Unfortunately, low growing increasers such as pussytoes, mat penstemon, desert phlox, and lance-leaved sedum make up a large proportion of the forb cover. Sum of nested frequency for the forbs also decreased in 2000 due to drought.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable. There is minimal soil movement even though there is a significant amount of bare ground. Vegetative trend depends mostly upon the management objectives. If a high level of livestock forage (i.e., grasses) is desired, trend is probable stable to slightly declining. The browse population, especially mountain big sagebrush, is increasing and will provide considerably more browse forage in the future. However, the forb-grass component is more important for summer range and should be enhanced if possible, even if shrub growth is inhibited.

1988 TREND ASSESSMENT

Due to a slight increase in vegetative "basal" cover from 7% to 12%, and an apparent increase in cryptogamic cover (from 0% in 1982 to 8% ground cover in 1988), the amount of bare soil decreased from 39% to 23%. Trend for soil is slightly up. The browse trend is up for the key species, mountain big sagebrush, which has increased by 40% since 1982. Reproductive potential is still high at 22% with 60% of the population consisting of young plants. Trend for the herbaceous understory is up due to increased quadrat frequency of both grasses and forbs.

TREND ASSESSMENT

soil - slightly up (4)

browse - up (5)

herbaceous understory - up (5)

1995 TREND ASSESSMENT

Even though the original study stakes could not be located, the new study is very close to the old one and trends can still be determined. The soil trend is considered stable. Relative cover values for litter and cryptogamic cover have declined, but values for percent bare ground are similar. Erosion is not a problem because herbaceous cover is abundant. Trend for sagebrush is stable. The number of estimated mature plants/acre has remained relatively stable. The difference in density between 1988 and 1995 is due to the reduced number of young plants which declined from 4,666 plants/acre to 2,060, as well as the increased sample sized used in 1995. This is still a more than adequate number of young. Percent decadence has declined, vigor is good, and proportion of individuals showing heavy use has declined from 16% to less than 1%. Trend for the herbaceous understory is stable. Sum of nested frequency for grasses and forbs have declined slightly, but not enough to warrant a downward trend. This has most likely been the result of extended drought. Thickspike wheatgrass,

Carex, and needle-and-thread have declined significantly in nested frequency, while prairie junegrass and Sandberg bluegrass increased significantly.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

1997 TREND ASSESSMENT

As in 1995, the soil trend is stable with a decrease in bare ground cover. Vegetation and litter are still abundant and provide protection from wind and water erosion. The mountain big sagebrush population has slightly declined since 1995, but not significantly. The age class structure has stayed nearly the same with a decrease in the number of seedlings encountered this year. Decadency has slightly increased as has the ratio of dead to live plants. The proportion of the decadent plants classified as dying or in poor vigor is moderately high at 42%, however there is an adequate number of young plants to replace those individuals that may die-off. Trend for browse is slightly down. Nested frequency for muttongrass has steadily increased since 1988, while Sandberg bluegrass has steadily decreased. Thickspike wheatgrass and needle-and-thread grass have significantly increased since 1995. Trend for the herbaceous understory is stable.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - stable (3)

2000 TREND ASSESSMENT

Trend for soil is slightly down. Relative percent cover of bare soil increased coupled with a decrease in relative percent cover of vegetation. The ratio of protective ground cover to bare soil also decreased as nested frequency values for herbaceous species are down due to drought. There was some evidence of overland flow and pedestaling around the base of shrubs. Trend for browse is stable. Mountain big sagebrush density appears stable and recruitment remains high at 29%. Although percent decadency slightly increased in 2000 (from 9% to 14%), the proportion of decadent plants classified as dying decreased. Also, the ratio of dead to live plants improved from 1:6 to 1:10 in 2000. Vigor remains generally good, and use is light to moderate. Trend for the herbaceous understory is slightly down. Sum of nested frequency values for perennial grasses and forbs decreased in 2000 due to drought.

TREND ASSESSMENT

soil - slightly down (2)

browse - stable (3)

herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Herd unit 10 , Study no: 4

T y p e	Species	Nested Frequency				Quadrat Frequency					Average Cover %		
		'88	'95	'97	'00	'82	'88	'95	'97	'00	'95	'97	'00
G	Agropyron dasystachyum	b ₁₉₅	b ₁₇₄	c ₂₇₁	a ₇₄	8	73	66	90	36	1.58	2.80	.48
G	Bouteloua gracilis	b ₂₅	a ⁻	ab ₁	a ⁻	-	12	-	1	-	-	.00	-
G	Carex spp.	b ₅₃	a ₂₂	ab ₃₃	ab ₃₃	3	22	11	13	16	.05	.06	.39
G	Koeleria cristata	a ₉₂	b ₁₇₂	a ₁₀₆	b ₁₆₈	56	34	63	44	65	2.52	.86	2.50
G	Oryzopsis hymenoides	-	-	-	1	-	-	-	-	1	-	-	.00
G	Poa fendleriana	a ⁻	b ₈₄	c ₂₁₄	c ₁₈₂	-	-	32	75	63	1.37	2.53	4.40
G	Poa pratensis	-	-	6	-	-	-	-	2	-	-	.18	-
G	Poa secunda	c ₁₃₃	c ₁₃₇	a ₃₄	b ₈₅	48	57	50	14	31	2.75	.66	.69
G	Sitanion hystrix	-	-	-	2	-	-	-	-	2	-	-	.01
G	Stipa comata	c ₂₂₅	a ₄₂	b ₉₄	a ₃₇	50	81	18	42	15	.58	1.14	.50
Total for Annual Grasses		0	0	0	0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		723	631	759	582	165	279	240	281	229	8.89	8.26	9.00
Total for Grasses		723	631	759	582	165	279	240	281	229	8.89	8.26	9.00
F	Agoseris glauca	a ⁻	b ₂₅	b ₃₉	b ₃₅	-	-	13	20	17	.11	.13	.18
F	Allium spp.	-	-	-	-	1	-	-	-	-	-	-	-
F	Antennaria rosea	b ₁₉₆	a ₉₉	a ₁₁₂	a ₁₀₃	34	66	41	47	39	2.40	2.34	3.19
F	Androsace septentrionalis (a)	-	b ₆₅	a ₉	a ₁₆	-	-	31	6	6	.18	.05	.05
F	Arabis spp.	b ₄₇	a ⁻	a ₆	a ₁	-	22	-	3	1	-	.01	.00
F	Arenaria congesta	c ₂₅₆	ab ₆₆	a ₅₄	b ₉₆	-	87	26	23	40	.82	.48	1.68
F	Arabis drummondi	-	5	-	-	-	-	3	-	-	.01	-	-
F	Astragalus convallarius	a ₁	ab ₁₉	ab ₂₁	b ₃₃	6	1	10	9	16	.07	.09	.42
F	Astragalus spatulatus	-	1	6	5	-	-	1	3	3	.03	.21	.06
F	Aster spp.	a ⁻	ab ₁₁	ab ₄₃	b ₁₀	-	-	6	18	7	.08	.14	.08
F	Astragalus spp.	5	11	4	1	-	2	4	2	1	.59	.03	.03
F	Castilleja flava	a ₈	b ₄₁	ab ₂₉	ab ₂₂	-	6	18	14	13	.31	.24	.19
F	Carduus nutans (a)	-	b ₉	a ⁻	a ⁻	-	-	5	-	-	.02	-	-
F	Chaenactis douglasii	-	4	-	4	-	-	1	-	2	.00	-	.01
F	Cirsium spp.	3	-	-	-	-	1	-	-	-	-	-	-
F	Comandra pallida	b ₂₂₂	a ₉₇	a ₁₀₇	a ₁₂₇	25	77	41	47	54	.45	.48	1.39
F	Collinsia parviflora (a)	-	b ₃₀	a ⁻	a ⁻	-	-	10	-	-	.12	-	-
F	Crepis acuminata	a ₆	b ₅₆	b ₅₄	b ₄₅	-	5	32	26	24	.36	.23	.54
F	Cryptantha spp.	b ₇	a ⁻	a ⁻	a ⁻	29	4	-	-	-	-	-	-
F	Delphinium bicolor	a ⁻	ab ₆	b ₁₀	a ⁻	-	-	3	6	-	.01	.03	-
F	Eriogonum alatum	a ⁻	b ₁₇	a ⁻	b ₁₀	-	-	8	-	6	.15	-	.05
F	Erigeron eatonii	a ⁻	a ⁻	a ⁻	b ₃₁	-	-	-	-	20	-	-	.18
F	Erigeron spp.	a ⁻	a ⁻	b ₈₃	a ⁻	-	-	-	41	-	-	.28	-

T y p e	Species	Nested Frequency				Quadrat Frequency					Average Cover %		
		'88	'95	'97	'00	'82	'88	'95	'97	'00	'95	'97	'00
F	<i>Erigeron pumilus</i>	_d 174	_c 109	_a -	_b 35	48	69	50	-	16	.58	-	.25
F	<i>Eriogonum racemosum</i>	-	-	-	4	-	-	-	-	2	-	-	.01
F	<i>Eriogonum umbellatum</i>	41	55	41	30	12	21	22	17	15	.98	.28	.25
F	<i>Gayophytum ramosissimum</i> (a)	-	1	-	-	-	-	1	-	-	.00	-	-
F	<i>Hymenopappus filifolius</i>	_a -	_b 31	_c 47	_b 31	-	-	11	16	13	.71	.33	.47
F	<i>Hymenoxys richardsonii</i>	-	-	-	2	-	-	-	-	1	-	-	.03
F	<i>Lesquerella ludoviciana</i>	_a -	_c 39	_b 10	_b 21	-	-	16	6	10	.23	.08	.05
F	<i>Linum lewisii</i>	_a -	_c 40	_c 27	_b 9	-	-	19	13	4	.18	.11	.05
F	<i>Lithospermum</i> spp.	-	6	-	-	-	-	3	-	-	.01	-	-
F	<i>Lomatium</i> spp.	_a -	_a 1	_b 21	_a -	-	-	1	9	-	.01	.04	-
F	<i>Lupinus argenteus</i>	_a 31	_b 59	_b 55	_{ab} 45	2	16	29	30	19	1.80	1.85	.92
F	<i>Orthocarpus</i> spp. (a)	-	1	-	3	-	-	1	-	1	.00	-	.00
F	<i>Penstemon caespitosus</i>	_a 14	_b 99	_b 75	_b 70	4	7	40	34	28	3.32	.72	1.24
F	<i>Penstemon humilis</i>	_b 16	_a -	_a -	_a 5	-	8	-	-	2	-	-	.30
F	<i>Penstemon</i> spp.	_a -	_a 2	_a -	_b 7	2	-	1	-	3	.00	-	.06
F	<i>Phlox austromontana</i>	_a 58	_b 137	_b 107	_b 124	18	23	51	43	48	1.89	.81	3.11
F	<i>Phlox longifolia</i>	36	47	44	29	7	17	19	21	15	.19	.20	.07
F	<i>Polygonum douglasii</i> (a)	-	_b 85	_b 57	_a 3	-	-	31	23	1	.25	.11	.00
F	<i>Senecio integerrimus</i>	_a -	_b 17	_c 41	_{ab} 1	-	-	7	16	1	.06	.14	.00
F	<i>Sedum lanceolatum</i>	_b 164	_a 111	_a 112	_a 113	16	60	40	40	41	2.38	.72	1.13
F	<i>Senecio multilobatus</i>	_a -	_b 15	_a -	_a -	-	-	7	-	-	.22	-	-
F	<i>Sphaeralcea coccinea</i>	-	4	2	-	-	-	2	1	-	.01	.00	-
F	<i>Taraxacum officinale</i>	1	14	13	4	-	1	6	6	2	.05	.03	.01
F	Unknown forb-annual (a)	-	-	1	-	-	-	-	1	-	-	.00	-
F	<i>Zigadenus paniculatus</i>	-	3	4	-	-	-	2	2	-	.01	.01	-
Total for Annual Forbs		0	191	67	22	0	0	79	30	8	0.59	0.17	0.06
Total for Perennial Forbs		1286	1247	1167	1053	230	493	533	513	463	18.15	10.09	16.05
Total for Forbs		1286	1438	1234	1075	230	493	612	543	471	18.74	10.27	16.12

Values with different subscript letters are significantly different at $\alpha = 0.10$ (annuals excluded)

BROWSE TRENDS --
Herd unit 10 , Study no: 4

T y p e	Species	Strip Frequency			Average Cover %		
		'95	'97	'00	'95	'97	'00
B	Artemisia tridentata tridentata	0	3	0	-	-	-
B	Artemisia tridentata vaseyana	84	83	87	13.93	11.59	13.30
B	Ceratoides lanata	3	0	0	-	-	-
B	Chrysothamnus depressus	66	56	65	1.72	1.55	1.26
B	Chrysothamnus viscidiflorus viscidiflorus	57	47	44	.82	.42	.65
B	Gutierrezia sarothrae	10	4	2	.51	.01	-
B	Juniperus scopulorum	0	1	1	.03	.63	.15
B	Peraphyllum ramosissimum	9	13	10	2.31	1.15	1.95
B	Pediocactus simpsonii	0	2	2	.03	.03	.03
B	Pinus edulis	0	1	1	-	-	-
B	Symphoricarpos oreophilus	1	1	1	-	-	-
B	Tetradymia canescens	4	4	9	-	.03	.07
Total for Browse		234	215	222	19.38	15.42	17.41

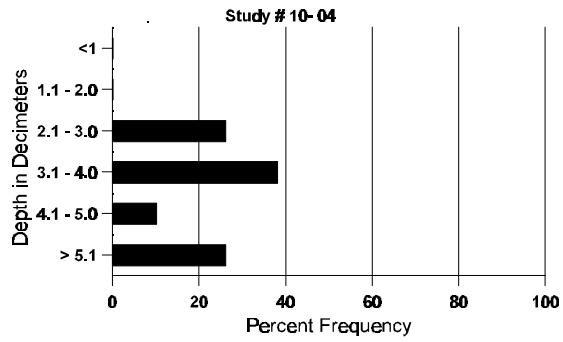
BASIC COVER --
Herd unit 10 , Study no: 4

Cover Type	Nested Frequency			Average Cover %				
	'95	'97	'00	'82	'88	'95	'97	'00
Vegetation	372	370	351	7.25	12.25	47.23	38.17	43.97
Rock	47	32	6	0	0	.16	.15	.04
Pavement	72	154	97	0	0	.56	2.65	.85
Litter	391	395	362	61.50	56.75	44.75	33.25	46.00
Cryptogams	107	169	92	0	8.00	1.20	1.98	2.07
Bare Ground	304	242	308	39.00	23.00	26.94	18.45	35.99

SOIL ANALYSIS DATA --
Herd Unit 10, Study no: 04

Effective rooting depth (inches)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
18.6	57.2 (16)	6.7	31.8	32.4	35.8	2.4	6.9	124.8	0.46

Stoniness Index



PELLET GROUP FREQUENCY -- Herd unit 10 , Study no: 4

Type	Quadrat Frequency		
	'95	'97	'00
Rabbit	1	1	19
Elk	4	9	13
Deer	18	11	21
Cattle	4	5	1

Pellet Transect			
Pellet Groups per Acre		Days Use per Acre (ha)	
'97	'00	'97	'00
2	314	N/A	N/A
287	244	22 (55)	19 (47)
339	426	26 (64)	33 (82)
287	61	24 (59)	5 (13)

BROWSE CHARACTERISTICS --

Herd unit 10 , Study no: 4

Field Unit 10, Study No. 4																		
A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier alnifolia																		
Y	'82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'88	-	-	1	-	-	-	-	-	-	-	-	1	-	66			1
	'95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	'00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	'82	-	1	-	-	-	-	-	-	-	1	-	-	-	66	26	10	1
	'88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		100%			00%			00%			+ 0%							
'88		00%			100%			100%										
'95		00%			00%			00%										
'97		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'82	66	Dec:	-	
														'88	66		-	
														'95	0		-	
														'97	0		-	
														'00	0		-	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata tridentata																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	7	-	-	-	-	-	-	-	-	-	7	-	-	-	140	7	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	97	3	-	-	-	-	-	-	-	-	-	3	-	-	-	60	64 76 3	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>% Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'97		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'97	60		-			
												'00	0		-			

A Y G R E	Form Class (No. of Plants)	Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total									
		1	2	3	4				1	2	3	4					
Artemisia tridentata vaseyana																	
S	82	100	-	-	-	-	-	-	-	-	100	-	-	-	6666		100
	88	21	3	-	-	-	-	1	-	-	25	-	-	-	1666		25
	95	84	-	-	-	-	-	-	-	-	84	-	-	-	1680		84
	97	18	-	-	1	-	-	-	-	-	19	-	-	-	380		19
	00	10	-	-	5	-	-	-	-	-	15	-	-	-	300		15
Y	82	22	-	-	-	-	-	-	-	-	22	-	-	-	1466		22
	88	40	25	3	-	-	-	2	-	-	70	-	-	-	4666		70
	95	102	-	-	1	-	-	-	-	-	102	-	1	-	2060		103
	97	68	2	1	1	-	-	-	-	-	72	-	-	-	1440		72
	00	76	-	-	5	-	-	-	-	-	81	-	-	-	1620		81
M	82	48	-	-	-	-	-	-	-	-	48	-	-	-	3200	29 29	48
	88	11	12	11	-	-	-	-	-	-	34	-	-	-	2266	27 24	34
	95	96	44	1	-	-	-	-	-	-	140	-	1	-	2820	30 35	141
	97	75	50	3	-	-	-	-	-	-	124	-	4	-	2560	29 37	128
	00	98	56	1	6	-	-	-	-	-	154	1	6	-	3220	31 34	161
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	3	4	3	-	-	2	-	-	-	12	-	-	-	800		12
	95	7	7	1	-	-	-	-	-	-	14	-	1	-	300		15
	97	15	4	-	-	-	-	-	-	-	11	-	-	8	380		19
	00	19	14	1	3	2	1	-	-	-	23	1	4	12	800		40
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	720		36
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	700		35
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	560		28
% Plants Showing		Moderate Use			Heavy Use			Poor Vigor			%Change						
		'82			00%			00%			+40%						
		'88			35%			16%			-33%						
		'95			20%			.77%			-15%						
		'97			26%			02%			+22%						
		'00			26%			01%									
Total Plants/Acre (excluding Dead & Seedlings)												'82	4666	Dec:	0%		
												'88	7732		10%		
												'95	5180		6%		
												'97	4380		9%		
												'00	5640		14%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Ceratoides lanata																	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	95	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	95	-	3	-	-	-	-	-	-	-	-	3	-	-	60	-	3
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	95	1	-	-	-	-	-	-	-	-	-	-	-	1	20		1
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>% Change</u>						
		'82			00%			00%			00%						
		'88			00%			00%			00%						
		'95			60%			00%			20%						
		'97			00%			00%			00%						
		'00			00%			00%			00%						
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	0%		
												'88	0		0%		
												'95	100		20%		
												'97	0		0%		
												'00	0		0%		

A Y G R E	Form Class (No. of Plants)	Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total								
		1	2	3	4											
Chrysothamnus depressus																
S	82	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	1	-	-	-	-	-	-	-	1	-	-	66		1
	95	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	97	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	13	7	-	-	-	-	1	-	-	20	-	-	1400		21
	95	18	-	-	-	-	-	-	-	-	18	-	-	360		18
	97	5	-	-	-	-	-	-	-	-	5	-	-	100		5
	00	24	-	-	-	-	-	-	-	-	24	-	-	480		24
M	82	175	-	-	-	-	-	-	-	-	175	-	-	11666	3 8	175
	88	24	2	-	-	-	-	-	-	-	26	-	-	1733	4 5	26
	95	266	-	-	-	-	-	-	-	-	266	-	-	5320	5 8	266
	97	176	2	-	1	-	-	-	-	-	179	-	-	3580	4 6	179
	00	198	1	-	5	-	-	-	-	-	204	-	-	4080	4 7	204
D	82	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	3	2	1	-	-	-	1	-	1	6	-	1	533		8
	95	5	-	-	-	-	-	-	-	-	3	-	-	100		5
	97	2	-	-	-	-	-	-	-	-	2	-	-	40		2
	00	6	-	-	-	-	-	-	-	-	-	-	-	120		6
X	82	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	88	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	95	-	-	-	-	-	-	-	-	-	-	-	-	20		1
	97	-	-	-	-	-	-	-	-	-	-	-	-	20		1
	00	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		Moderate Use		Heavy Use		Poor Vigor		%Change								
'82		00%		00%		00%		-69%								
'88		20%		04%		05%		+37%								
'95		00%		00%		.69%		-36%								
'97		01%		00%		00%		+21%								
'00		.42%		00%		03%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	11666	Dec:	0%	
												'88	3666		15%	
												'95	5780		2%	
												'97	3720		1%	
												'00	4680		3%	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	48	-	-	1	-	-	-	-	-	49	-	-	-	980		49	
	97	12	-	-	-	-	-	-	-	-	12	-	-	-	240		12	
	00	35	-	-	-	-	-	-	-	-	35	-	-	-	700		35	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	85	-	-	1	-	-	-	-	-	86	-	-	-	1720	9	86	
	97	64	-	-	4	-	-	-	-	-	68	-	-	-	1360	8	68	
	00	44	-	-	7	-	-	1	-	-	52	-	-	-	1040	9	52	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	2	-	-	-	-	-	1	-	1	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%			-41%							
'97		00%			00%			00%			+10%							
'00		00%			00%			01%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	0%			
												'88	0		0%			
												'95	2700		0%			
												'97	1600		0%			
												'00	1780		2%			
Gutierrezia sarothrae																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	24	-	-	-	-	-	-	-	-	24	-	-	-	480	6	24	
	97	6	-	-	-	-	-	-	-	-	6	-	-	-	120	4	6	
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80	3	4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%			-76%							
'97		00%			00%			00%			-33%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	500		-			
												'97	120		-			
												'00	80		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Juniperus osteosperma																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20		1
Y	82	1	-	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	88	1	-	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%			+ 0%							
'88		00%			00%			00%										
'95		00%			00%			00%										
'97		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	66	Dec:	-			
												'88	66		-			
												'95	0		-			
												'97	0		-			
												'00	0		-			
Juniperus scopulorum																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20		1
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	97	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20	-	1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'97		00%			00%			00%										
'00		00%			00%			00%			+ 0%							
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'97	20		-			
												'00	20		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Peraphyllum ramosissimum																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	4	-	-	-	-	-	-	-	-	-	-	-	-	266		4	
	95	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	97	3	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
	00	1	-	-	1	-	-	-	-	-	-	2	-	-	-	40		2
M	82	2	-	-	-	-	-	-	-	-	2	-	-	-	133	31	28	2
	88	1	1	1	-	1	-	-	-	-	4	-	-	-	266	26	25	4
	95	4	5	1	-	-	-	-	-	-	10	-	-	-	200	24	30	10
	97	1	2	4	1	2	1	-	-	-	11	-	-	-	220	23	34	11
	00	1	-	-	1	3	-	1	-	-	6	-	-	-	120	26	34	6
D	82	5	-	-	-	-	-	-	-	-	2	3	-	-	333			5
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	1	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	2	-	1	-	-	1	-	-	2	60			3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%			+22%							
'88		22%			11%			00%			-63%							
'95		45%			09%			00%			+27%							
'97		33%			33%			00%			-27%							
'00		45%			00%			18%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	466	Dec:	71%			
												'88	598		11%			
												'95	220		0%			
												'97	300		7%			
												'00	220		27%			
Pediocactus simpsonii																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	3	-	-	-	-	-	-	-	-	3	-	-	-	60	2	4	3
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	2	4	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'97		00%			00%			00%			-33%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'97	60		-			
												'00	40		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Pinus edulis																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20	1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20	1	
	00	1	-	-	-	-	-	-	-	-	-	1	-	-	-	20	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'97		00%			00%			00%			+ 0%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'97	20		-			
												'00	20		-			
Purshia tridentata																		
S	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	14	20	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	11	24	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'97		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'97	0		-			
												'00	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	6	-	-	-	-	-	-	3	-	-	-	-	-	600		9	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	82	3	-	-	-	-	-	-	-	-	3	-	-	-	200	8	12	3
	88	-	3	-	-	-	-	-	-	-	2	-	1	-	200	20	12	3
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	7	10	1
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	13	19	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%			+75%							
'88		25%			00%			08%			-98%							
'95		00%			00%			00%			+ 0%							
'97		00%			00%			00%			+ 0%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	200	Dec:	-			
												'88	800		-			
												'95	20		-			
												'97	20		-			
												'00	20		-			
Tetradymia canescens																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	3	-	1	-	-	-	-	-	-	4	-	-	-	80	7	13	4
	97	5	1	-	-	-	-	-	-	-	6	-	-	-	120	7	10	6
	00	12	-	-	-	-	-	-	-	-	12	-	-	-	240	7	10	12
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			17%			00%			+14%							
'97		14%			00%			00%			+46%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	120		-			
												'97	140		-			
												'00	260		-			